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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/582,545

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Hugues De Feraudy

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Womble Carlyle Sandridge & Rice, PLLC

Attn: Patent Docketing 32nd Floor

P.O. Box 7037

Atlanta, GA 30357-0037

EXAMINER

TISCHLER, FRANCES

ART UNIT

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1796

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/582,545	Applicant(s) DE FERAUDY ET AL.	
	Examiner Frances Tischler	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/9/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1 – 35 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1- 31 of copending Application No. 10/576,256 in view of Feraudy (US 6,460,788). Although the conflicting claims are not identical, they are not patentably distinct from each other.

3. Both applications claim a method for selective separation by density of a mixture of waste synthetic organic materials to be reused having a density of at least 1. The density separation is done in a separator in an aqueous suspension with powder particles used for creation of density levels. Dynamic stabilization is done with

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compounds such as phosphates, polymers of acrylic acids, etc. The instant application claims further dynamic stabilization through circulation in the separator, the circulating flow rate values (claims 1, 8, and 9) of which are absent in 10/576,256. Feraudy discloses a method for selective separation by density of a mixture of polymers to be reused. The density separation is done in an aqueous suspension with powder particles to create density levels, and with stabilization agents. Feraudy discloses the use of a separator with circulation rates that vary depending on how the procedure is done. It would have been obvious to one of ordinary skill in the art to have achieved the dynamic stabilization of the suspension in 10/576,256 with Feraudy's circulation rates.

4. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 13 – 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant claims a water-soluble acrylic copolymer. However, in some embodiments of the claim, such as when $n = 0$, the polymer is no longer acrylic.

7. Claim 27 recites the limitation "method according to claim 10, wherein the weight of the water-soluble stabilization agent..." in lines 1 and 2. There is insufficient

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antecedent basis for this limitation in the claim. Applicant may have meant to claim a method according to claim 11 or to claim 12.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. **Claims 1 – 11 and 28 – 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feraudy (US 6,460,788) in view of Allen (WO 2004/009200).**

11. Regarding claims 1 and 2: **Feraudy** discloses (abstract, column 3, lines 6 – 34, column 4, lines 14 - 19) a method of separating a mixture of polymers, such as PE, PP, PS, ABS, PPMA, PVC, etc., derived from waste using a density separation technique. The density separation is done in a liquid medium (column 3, lines 23 – 25). The density

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of the polymers range from below 1 to 1.25 (column 5, lines 65 - end, column 6, lines 1 - 35). The density separation can be done in a single separator or in several separators connected in parallel or in series (column 3, lines 6 – 35, column 6, lines 31—35, column 8, lines 41 - 45). Feraudy preferably uses floatation hydraulic separators comprising water, wetting agents and inorganic compounds (column 6, lines 36 – 46).

12. Feraudy is silent on the size of the inorganic compounds/powder particles, circulating flow rate and precision level of the density reading.

13. The inorganic compound used to increase the density of the water comprises clays, bentonite or soluble compounds such as salts (column 6, lines 36 – 46), reading on applicant's claim 3.

14. The wetting agent, such as SP 30 S from Coatex, is used to keep the clay in suspension (column 6, lines 46 – 48), reading on applicant's use of a stabilizing agent of claim 11.

15. The hydraulic separators disclosed by Feraudy can be static separators, dynamic separators, electrostatic, or those with a pump and a cyclone to produce a circulating sorting flow (column 12, lines 3 – 11), reading on applicant's claims 1, 6 – 9, 28 and 30. Feraudy discloses that the circulation rates vary depending on how the procedure is done, such as once or batchwise, and should be optimized accordingly (column 12, lines 12 - 17). Feraudy is silent on an exact number for the flow rate or hourly turnover rate. Applicant admits ([0097]) that a person skilled in the art would know how to adjust the flow rate to keep the particles in a homogeneous environment. The case law has held that "A particular parameter must first be recognized as a result-effective variable,

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i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. In re Antonie, 559 F.2d618, 195 USPQ 6 (CCPA 1977). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have adjusted the flow rate or hourly turnover rate as necessary through routine optimization to obtain the desired results.

16. Feraudy discloses doing a first phase of density separation where the density is decreased from 1.25 to 1, followed by a second phase of density separation, where the density is increased from 1.25 – 1 (column 3, lines 6 – 35), reading on applicant's claim 29. The hydraulic separator can have a pump and a cyclone to produce a circulating sorting flow (column 12, lines 3 – 11), reading on claim 30. The various stages of separation in parallel or in series (column 3, lines 6 – 34, column 6, lines 31 – 35), read on claim 31.

17. Feraudy is silent on the conductivity of the aqueous phase claimed in claim 10. However, applicant admits ([0086]) that the water to be used in making the aqueous suspension can be spring water, water for human consumption, industrial water, sea water, etc. Therefore, the conductivity of Feraudy's aqueous suspension is inherently the same as applicant's claimed suspension, since the water can come from any source and Faraday is not specific as to what water to use, and both applicant and the prior art add inorganic compounds and stabilizing agents to make the same suspension for the same purpose of separating polymers according to densities.

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18. Feraudy discloses that the density separation can be done on a smooth or stepwise function (column 3, lines 12 – 16), in one separator or in more than one separator (column 6, lines 64 – 67). The density is decreased or increased by automatic addition of a precise amount of water (column 6, lines 57 – 61), or by an automatic addition of a precise amount of clay (column 9, lines 5 – 15), which reads on applicant's claim to continuously control the aqueous suspension in claim 32. Feraudy is silent on the mechanics of how the automatic addition of precise amounts of water is performed, as claimed by applicant in claims 33 and 34 where electrical valves connected to tanks allows more or less water to be added depending on density readings. It can be assumed that since Feraudy's addition of water or clay is automatic and precise, it had to be done electronically (because it is disclosed to be an automatic process), with automatic reading of density, and the water or clay needed to come from a reservoir (because the process is automatic, the addition of water is not done manually).

19. Feraudy discloses density separation of the polymers where the densities measure 1.25, 1.18, 1.15, 1.10, 1.05 and 1 (column 6, lines 49 – 56, column 7, lines 1 – 15, column 9, lines 16 - 30), corresponding to a precision level of ± 0.005 . Applicant claims a precision level of ± 0.0005 . Neither applicant nor Feraudy disclose the brand of the apparatus used for density readings. The precision of the reading is dependent on the apparatus used. Since Feraudy is separating out the same polymers and by the substantially identical method as claimed by applicant, it can be assumed that the densities of both inventions are equivalent.

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20. Feraudy discloses the use powder particles in water to aid in the density separation of polymers but is silent on using specifically glass powder, calcium carbonate or metallic powders as claimed by applicant in claim 4, and he is s also silent on the size of these particles as claimed in claims 1, 2 and 5.

21. Feraudy discloses the use of waste polymers but is silent on the type of waste such as automobiles or durable consumer goods as claimed in claim 35.

22. **Allen** discloses (page 1, lines 11 – 15 and lines 26 - end) a method of separating mixtures of used polymers using a density separation technique. The polymers are added to slurry consisting of water and magnetite, titanium dioxide, sand, ferrosilicate or other materials, reading on applicant's metallic powders of claim 4. Sand reads on applicant's silica of claim 3. The particle size ranges from 5 to 30 microns (page 2, lines 5 – 23, page 4, lines 13 - 22), reading on applicant's particle size of no more than 30, 20 and 5 microns of claims 1, 2 and 5. The used polymers are obtained from durable goods.

23. It would have been obvious to one of ordinary skill in the art at the time of the invention to have substituted Feraudy's powder particles, such as clays, bentonite and salts, with Allen's powder particles, such as magnetite metallic powder, for the same results since both are using the particles for the same purpose of making a slurry with it in combination with water and the polymers to be separated by density.

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24. It would have been obvious to one of ordinary skill in the art to have used Allen's waste polymers that originated as durable goods to perform the density separation as disclosed by Feraudy, since Feraudy also discloses the use of waste polymers for the same purpose of sorting the various polymers by the same method of density separation in an aqueous environment with powder particles.

25. Claims 12 - 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feraudy (US 6,460,788) in view of Allen (WO 2004/009200) and further in view of Boutin et al (US 4,504,643).

26. The disclosure of Feraudy and Allen are discussed above and are incorporated herein by reference. Feraudy discloses the use of wetting agents/stabilizing agents such as Coatex's SP 30 S, but is silent on the specific agents claimed by applicant.

27. **Boutin** discloses (abstract, column 1, lines 1 – end, column 2, lines 1 – 30 and 63 – end, column 3, lines 1 - 30) the use of water soluble polymers used in aqueous environments as stabilizers/scale inhibitors to keep certain compounds, such as calcium carbonate in suspension and so these compounds don't separate out to the bottom of the vessel. The aqueous environment can be underground water, watercourse water, sea water, etc. The stabilizer polymer includes for example, alkali metal polyphosphates, homopolymers or copolymers of acrylic or methacrylic acid and corresponding alkali metal salts thereof, homopolymers or copolymers of maleic acid,

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polymers of ethylenic monoacids, copolymers of an alkali metal methallylsulfonate, such as sodium methallylsulfonate, with a monoethylenically unsaturated acid such as acrylic or methacrylic acid. The above stabilizers read on several species claimed by applicant in claims 12 - 24. The metal ions read on applicant's claim 26. The molecular weight of a water soluble copolymer of acrylic acid and vinyl sulfonate ranges from 1,000 to 25,000, which are within applicant's claimed range of 5,000 – 100,000 of claim 25.

28. It would have been obvious to one of ordinary skill in the art at the time of the invention to have substituted Feraudy's stabilizing agent for any one of Boutin's stabilizing agents since the purpose of either agent is the same, which is to stabilize the aqueous suspension that contains particles, such as calcium carbonate, salts, clays, etc., so that these particles don't separate out from the suspension.

29. Applicant claims 0.02% - 5% of stabilizing agent with respect to the powder particles in claim 27. Feraudy and Boutin are silent on this ratio. However, Boutin discloses (column 3, lines 25 – 30) doses of 0.2 to 50 mg/liter (i.e., 0.02 – 5%) of stabilizing agent per liter of water. Since Feraudy's slurry contains a large amount of powder particles so that it can be considered to be slurry, it necessarily contains a much larger amount of powder particles than stabilizing agent. The exact amounts of each can be optimized for the desired results.

Examiner Information

30. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frances Tischler whose telephone number is (571)270-5458. The examiner can normally be reached on Monday-Friday 7:30AM - 5:00 PM; off every other Friday.

31. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jim Seileck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

32. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Irina S. Zemel/
Primary Examiner, Art Unit 1796

Frances Tischler
Examiner
Art Unit 1796

/FT/

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